Listing of Claims:

1.(Canceled)

2.(New) A method of moving a given set of trains from their respective origins to their respective destinations on a rail network, said method comprising:

(i) forming a schedulable set of trains consisting of all trains not at their destination that have at least one unoccupied link;

(ii) selecting the train from said schedulable set with the earliest start time from its current location, wherein said selected train is to travel from station S_i to station S_j;

(iii) forming a contender set of trains consisting of all trains that have as their next move a dispatch from station S_i to S_j and vice-versa;

(iv) selecting the train from said contender set with the earliest arrival time at its successor station (either station S_i to S_j);

(v) for said selected train invoking a deadlock avoidance procedure, wherein if said procedure accepts the train then go to step (vi), or if the train is rejected then remove it from the schedulable set and if the schedulable set is not empty then return to step (ii) otherwise go to step (vii);

(vi) scheduling said selected train over its chosen link to its successor station;

(vii) return to step (i) until all trains are at their destination or the schedulable set is empty to create a possible schedule;

(viii) assessing said possible schedule by means of an objective function;

(ix) repeating steps (i) to (viii) to create N possible schedules; and

(x) selecting a desired schedule from said N possible schedules on the basis of said objective function and moving said set of trains from their respective origins to their respective destinations on the rail network in accordance with said desired schedule.

3.(New) The method of moving a given set of trains from their respective origins to their respective destinations on a rail network as claimed in claim 2, wherein said objective function used to evaluate each schedule is the sum of the lateness of each train, wherein the lateness of each train is given by the function:

$$Z^{i}(a_{id}) = \begin{cases} 0 & a_{id} \le a_i^* \\ a_{id} - a_i^* & a_{id} > a_i^* \end{cases}$$

where a_{id} is the actual arrival time of train i at is destination while a_i* is the desired arrival time.

4.(New) The method of moving a given set of trains from their respective origins to their respective destinations on a rail network as claimed in claim 2, wherein track capacity constraints are included in the objective function by means of langrange multipliers.

5.(New) The method of moving a given set of trains from their respective origins to their respective destinations on a rail network as claimed in claim 3, wherein track capacity constraints are included in the objective function by means of langrange multipliers.

6.(New) The method of moving a given set of trains from their respective origins to their respective destinations on a rail network as claimed in claim 2, wherein a heuristic method is used to remove any infeasible train movements.

7.(New) The method of moving a given set of trains from their respective origins to their respective destinations on a rail network as claimed in claim 2, wherein perturbations of train start times, st_i, and train finish times, ft_i are made thereby enabling the generation of a plurality of different sequences of dispatch decisions.

8.(New) The method of moving a given set of trains from their respective origins to their respective destinations on a rail network as claimed in claim 7, wherein the size of ϵ of the perturbations added to the train start and finish times is governed by the parameter α and is given by

$$\epsilon = \alpha \, U(0,1)$$

where $U(0,1)$ is a uniformly distributed random variable on the interval [0,1].